

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

D. Remarks

Rejection of Claims 21 and 22 Under 35 U.S.C. §102(b) based on *Nakamura et al.* (U.S. Patent No. 5,986,299).

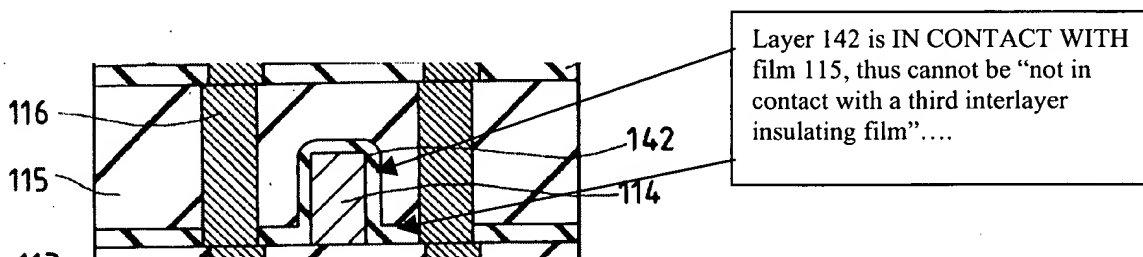
The invention of amended claim 21 is directed to a semiconductor device structure that includes an insulating film formed from a gas containing carbon. The semiconductor device structure includes a contact, a capacitor contact that penetrates second and third interlayer insulating films, and a conductor formed on the second interlayer insulating film and below at least a portion of the third interlayer insulating film.

The conductor contains a nitride film at upper and side portions. The side portion nitride film is in direct contact with the capacitor contact and the conductor and not in contact with the third interlayer insulating film. In addition, the semiconductor device includes a silicon nitride film for preventing carbon diffusion. The silicon nitride film is formed on the third interlayer insulating film while traversing a region except a connection portion between a lower electrode and the capacitor contact. The silicon nitride film is formed above the nitride film at the upper portion of the conductor.

As is well known, a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single reference.

The cited reference *Nakamura et al.* does not show a side portion nitride film that is both in direct contact with the capacitor contact and not in contact with the third interlayer insulating film.

Nakamura et al. shows a film 142 (argued to correspond to Applicant's side portion nitride film) formed on a second layer wiring 114 (argued to correspond to Applicant's conductor). However, as shown below, all side portions of film 142 are in contact with the third insulating film 115 (argued to correspond to Applicant's third interlayer insulating film).



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

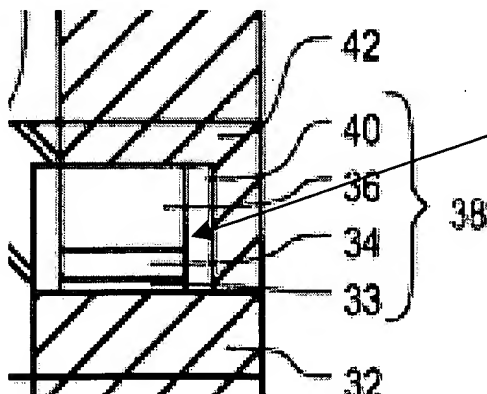
Accordingly, because the cited reference does not show all limitations of amended claim 21, this ground for rejection is traversed.

5 Rejection of Claims 23 and 24 Under 35 U.S.C. §102(a) based on *Background Art* (Applicant's *Background Art*).

The invention of amended claim 23 is directed to a semiconductor device on a silicon substrate having a device structure including an insulating film formed from gas containing carbon. The semiconductor device includes a contact electrically connected to a capacitor
10 contact, and a conductor formed on a second interlayer insulating film and below at least a portion of the third interlayer insulating film. A nitride film is at upper and side portions of the conductor.

The semiconductor device further includes a silicon nitride film for preventing carbon diffusion which is formed between the second and third interlayer insulating film and that
15 extends over the second interlayer insulating film in a lateral direction with a vertical thickness less than that of the conductor traversing a region except a connection portion between the lower electrode and the capacitor contact. The silicon nitride film is also formed on the nitride film at the upper and side portions of the conductor.

The *Background Art* does not show a silicon nitride film as recited in amended claim 23.
20 Applicant's *Background Art* shows a bit line 38 on which is formed a silicon nitride film sidewall 40. However, as shown below, such a silicon nitride sidewall does not extend over a second interlayer insulating film 32 in a lateral direction. Nor does such a sidewall have a vertical thickness less than that of the conductor.



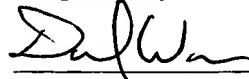
Silicon nitride film sidewall 40 does not extend laterally with a thickness greater than conductor 33/34.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Accordingly, because the cited reference does not show all limitations of amended claim 23, this ground for rejection is traversed.

5 Claims 21 and 23 have been amended. The present claims 1-2 and 21-25 are believed to be in allowable form. It is respectfully requested that the application be forwarded for allowance and issue.

Respectfully Submitted,



Darryl G. Walker

Attorney

Reg. No. 43,232

July 30, 2004

Darryl G. Walker
WALKER & SAKO, LLP
300 South First Street
Suite 235
San Jose, CA 95113
Tel. 1-408-289-5314